L6 ANSWER 4 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN
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TI DGO formation by lateral oxidation
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AB Silicon dioxide (SiO2) has been the MOSFET gat dielec. of choice over other dielecs. because of its phys. and elec. properties. However, as MOSFET dimensions are scaled, the gate leakage **current** becomes unacceptably high when the SiO2 is scaled to a thickness range where direct tunneling is the primary conduction mechanism. To achieve a lower leakage **current** at the same equivalent oxide thickness (EOT), the SiO2 can be replaced with a thicker dielec. that has a higher permittivity. Metal oxide insulators such as **zirconium dioxide** (ZrO2) and hafnium dioxide (HfO2) are examples of two dielecs. with permittivities higher than SiO2. To form a metal oxide with an extremely low elec. oxide thickness (tox), it is extremely important to control the surface preparation The ability to scale down the thickness of a metal oxide will be limited by the quality and thickness of any surface oxide or pretreatment. Thus it is desirable to remove the native oxide on the surface prior to formation of the metal oxide gate dielec. Two methods for removing a native oxide are HF cleaning and hydrogen baking at elevated temps. On a chip, it is desirable to have MOSFETs with different gate dielec. thickness to address the needs for high and low voltage operation. A thin gate dielec. is used for the high performance device that is operated low voltages whereas a thicker gate dielec. is used for MOSFETs that are operated using high voltages. The presence of two such different dielecs. is referred to as a Dual Gate Oxide (DGO).

	Type	L #	Hits	Search Text	DBs	Time Stamp
1	BRS	L1	1157	(sensor or biosensor) and ((via or (throughhole or (through near1 hole))) near3 (electrode or lead))	EPO; JPO; DERWENT	2004/06/15 16:09
2	BRS	L2	21128	(enzyme or oxdidase or oxidoreductase or dehydrogenase or ion or cation or anion) and electrode and (plate or substrate or strip)	EPO; JPO; DERWENT	2004/06/15 16:08
3	BRS	L3	2428	2 and (sensing or sensor or biosensing or biosensor or measuring)	USPAT; EPO; JPO; DERWENT	2004/06/15 16:08
4	BRS	L4	2428	2 and (sensing or sensor or biosensing or biosensor or measuring)	EPO; JPO; DERWENT	2004/06/15 16:08
5	BRS	L5	2394	4 not 1	EPO; JPO; DERWENT	2004/06/15 16:08
6	BRS	L6	154	5 and (via or (throughhole or (through near1 hole)))	EPO; JPO; DERWENT	2004/06/15 16:24
7	BRS	L7	258	5 and (plug or connector or lead)	EPO; JPO; DERWENT	2004/06/15 16:24
8	BRS	L8	232	7 not 6	EPO; JPO; DERWENT	2004/06/15 16:24